CLAIMS:

1. An image conversion unit (200) for converting a first image sequence, comprising a first image with a first resolution and a second image with the first resolution into a second image sequence comprising a third image with a second resolution, the image conversion unit (200) comprising:

- a coefficient-calculating means (106) for calculating a first filter coefficient on basis of pixel values of the first image;

- an adaptive filtering means (104) for calculating a third pixel value of the third image on basis of a first one of the pixel values of the first image and the first filter coefficient, characterized in that the coefficient-calculating means (106) is arranged to calculate the first filter coefficient on basis of further pixel values of the second image.

2. An image conversion unit (200) as claimed in claim 1, characterized in that the image conversion unit (200) is arranged to acquire the pixel values of the first image from a first part of the first image and the further pixel values of the second image from a second part of the second image, with the first part and the second part spatially corresponding.

3. An image conversion unit (200) as claimed in claim 1, characterized in that the image conversion unit (200) is arranged to acquire the pixel values of the first image from a first part of the first image and the further pixel values of the second image from a second part of the second image, with the first part and the second part at a motion trajectory.

4. An image conversion unit (200) as claimed in claim 1, characterized in that the coefficient-calculating means (106) is arranged to calculate the first filter coefficient by means of an optimization algorithm.

5. A method of converting a first image sequence, comprising a first image with a first resolution and a second image with the first resolution into a second image sequence comprising a third image with a second resolution, the method comprising:

- calculating a first filter coefficient on basis of pixel values of the first image; and

- calculating a third pixel value of the third image on basis of a first one of the pixel values of the first image and the first filter coefficient, characterized in that the first filter coefficient is calculated on basis of further pixel values of the second image.

6. An image processing apparatus (400) comprising:

- receiving means (402) for receiving a signal corresponding to a first image sequence; and

- the image conversion unit (404) for converting the first image sequence into a second image sequence, as claimed in claim 1.

7. An image processing apparatus (400) as claimed in claim 7, characterized in further comprising a display device (406) for displaying the second image sequence.

8. An image processing apparatus (400) as claimed in claim 8, characterized in that it is a TV.